

Attorney Docket No. 9792909-5787

PATENT

IN THE CLAIMS:

1. (Currently amended) A method of manufacturing a semiconductor apparatus comprising:

forming a first mask material film made of organic insulation film on a film to be processed;

forming a tapered aperture pattern, in which a bottom of said aperture pattern is made narrower than an open side of said aperture pattern, on said first mask material film; and

forming a vertical aperture pattern in said film to be processed by etching said film to be processed using said first mask material film as a mask;

wherein the bottom of the tapered aperture pattern is formed at a desirable micro dimension exceeding capabilities of lithography techniques.

2. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 1 further including removing said first mask material film.

3. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 1 wherein said film to be processed has a step.

4. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 1 wherein said first mask material film is made of material having a low dielectric constant.

5. and 6. (Canceled)

7. (Currently amended) The method of manufacturing a semiconductor apparatus according to claim 1 wherein said forming of the tapered aperture pattern includes setting a temperature of said substrate to between about minus 50 degrees Centigrade ~~to~~ and about 0 degrees Centigrade.

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8. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 1 wherein said first mask material film has a dielectric constant lower than silicon dioxide.

9. (Canceled)

10. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 1 further comprising forming a second mask material film on the first mask material film.

11. (Currently Amended) The method of manufacturing a semiconductor apparatus according to claim 10 wherein the first mask material film ~~is made of FLARE or SILK~~ has a heatproof temperature of about 350 degrees Centigrade.

12. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 10 further comprising forming a resist film on the second mask material film.

13. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 12 further comprising etching the resist film.

14. (Previously presented) The method of manufacturing a semiconductor apparatus according to claim 13 further comprising etching the second mask material film.

15. (Currently Amended) The method of manufacturing a semiconductor apparatus according to claim 3 wherein forming the first mask material film on the film to be processed planarizes an unevenness created by said step.

16. (Canceled)